

IN THE CLAIMS:

Cancel claims 1-30.

31. (new) A process for alkylation of an aromatic hydrocarbon or isoalkane with an olefin over the catalysis of a solid acid, comprising contacting a reaction material containing an aromatic hydrocarbon or C₄-C₆ isoalkane, C₂-C₁₈ monoolefin and a compound containing a strongly electronegative element, which serves as an promoter, with a solid acid catalyst to carry out the alkylation, characterized in that the solid acid catalyst is contacted with a hydrogen halide prior to its contact with the reaction material.

32. (new) The process according to claim 31, wherein prior to the contact of the solid acid catalyst with the reaction material, said hydrogen halide is contact with said catalyst in a form of being comprised in hydrocarbon.

33. (new) The process according to claim 32, wherein said hydrocarbon comprising a hydrogen halide is an aromatic hydrocarbon or isoalkane.

34. (new) The process according to claim 33, wherein said aromatic hydrocarbon or isoalkane comprising a hydrogen halide is the reactant of the alkylation.

35. (new) The process according to any one of claims 31 to 34, wherein said monoolefin is C₃-C₆ monoolefin.

36. (new) The process according to claim 31, wherein said strongly electronegative element is halogen.

37. (new) The process according to claim 33, wherein in said aromatic hydrocarbon or isoalkane comprising a hydrogen halide, the hydrogen halide is present in an amount of 10 to 5000 ppm.

38. (new) The process according to claim 37, wherein said hydrogen halide is present in an amount of 30 to 3500 ppm.

39. (new) The process according to claim 38, wherein said hydrogen halide is present in an amount of 50 to 3000 ppm.

40. (new) The process according to any one of claims 34 and 37 to 39, wherein said hydrogen halide is HF or HCl.

41. (new) The process according to claim 33, wherein said isoalkane comprising a hydrogen halide is one of C₄-C₆ isoalkanes, or a mixture of them.

42. (new) The process according to claim 41, wherein said isoalkane is isobutane.

43. (new) The process according to claim 31, wherein said C₄-C₆ isoalkane is isobutane.

44. (new) The process according to claim 31, wherein said aromatic hydrocarbon is benzene or naphthalene.

45. (new) The process according to claim 35, wherein said C₃-C₆ monoolefin is butene.

46. (new) The process according to claim 31, wherein prior to contact of said solid acid catalyst with the reaction material, the condition for its contact with the aromatic hydrocarbon or isoalkane comprising a hydrogen halide are as follows: the temperature is 10 to 350 °C, the pressure is 0.5 to 10.0 MPa, and the weight hourly space velocity of the aromatic hydrocarbon or isoalkane comprising a hydrogen halide is 0.2 to 8 h⁻¹.

47. (new) The process according to claim 46, wherein said contact conditions are as follows: the temperature ranges from the supercritical temperature of the aromatic hydrocarbon or isoalkane to 350 °C, the pressure ranges from the supercritical pressure of the aromatic hydrocarbon or isoalkane to 10.0 MPa, and the weight hourly space velocity of the aromatic hydrocarbon or isoalkane comprising a hydrogen halide is preferably 0.5 to 8.0 h⁻¹.

48. (new) The process according to claim 31, wherein conditions for the alkylation are as follows: the reaction temperature is 10 to 350 °C, the reaction pressure is 0.5 to 10.0 MPa, the mol ratio of the aromatic hydrocarbon or isoalkane to the olefin ranges from 2 to 200, the weight hourly space velocity of the reaction material is 0.1 to 20 h⁻¹, and the compound containing a strongly electronegative element is present in an amount of 10 to 5000 ppm in the reaction material.

49. (new) The process according to claim 48, wherein said conditions for the alkylation are as follows: the reaction temperature ranges from the supercritical temperature of the aromatic hydrocarbon or isoalkane to 350 °C, the reaction pressure ranges from the supercritical pressure of the aromatic hydrocarbon or isoalkane to 10.0 MPa, the mol ratio of the aromatic hydrocarbon or isoalkane to the olefin ranges from 10 to 90, the weight hourly space velocity of the reaction material is 0.5 to 8.0 h⁻¹, and the compound containing a strongly electronegative element is present in an amount of 50 to 3000 ppm.

50. (new) The process according to claim 31, wherein said solid acid catalyst is a supported heteropoly acid catalyst, a supported or unsupported heteropoly acid salt catalyst, a zeolite molecular sieve catalyst, a SO₄²⁻/oxide super acid catalyst, a supported Brönsted-Lewis conjugate solid super acid catalyst or an oxide or molecular sieve catalyst treated with a Brönsted acid or Lewis acid.

51. (new) The process according to claim 31, wherein said solid acid catalyst is a supported heteropoly acid catalyst, a supported or unsupported heteropoly acid salt catalyst, a supported Brönsted-Lewis conjugate solid super acid catalyst or an oxide catalyst treated with a Brönsted acid or Lewis acid.

52. (new) The process according to claim 50 or 51, wherein said supported heteropoly acid catalyst consists of a porous inorganic support and a heteropoly acid, wherein the heteropoly acid is represented by the general formula: H_{8-n}[AM₁₂O₄₀], wherein A represents P or Si, M represents W or Mo, and n represents the valence state of A and is 4 or 5; and wherein said supported heteropoly acid salt catalyst consists of a porous inorganic support and a heteropoly acid acid, wherein the heteropoly acid salt is represented by the general formula: H_{8-n-mx}N_x[AM₁₂O₄₀], wherein N is a metal ion selected from alkali metal ions, ammonium ion, alkali earth metal ions and metal ions of Group IIIA metals, m represents the valence state of the metal ion, x is a number usable in the range 0 < mx < 4, A

represents P or Si, M represents W or Mo, and n represents the valence state of A and is 4 or 5; said porous inorganic support being a conventional porous inorganic support selected from activated carbon, silicon oxide, aluminum oxide, magnesium oxide, titanium oxide, natural or synthetic aluminosilicate zeolite, carbon fiber and natural clay, or mixtures thereof.

53. (new) The process according to claim 52, wherein said porous inorganic support is silicon oxide, aluminum oxide or a mixture of them.

54. (new) The process according to claim 50 or 51, wherein said supported Brönsted-Lewis conjugate solid super acid consists of 40 to 95 % by weight of a porous inorganic support, and 1 to 60 % by weight of a heteropoly acid and 0.3 to 15 % by weight of a Lewis acid supported on the porous inorganic support, wherein said heteropoly acid and porous inorganic support are as defined in claim 22; said Lewis acid is selected from AlCl₃, BF₃ or XF₅, wherein X represents P, As, Sb or Bi.